CARRIERS AT WAR 1941-1945

FLEET CARRIER OPERATIONS IN THE PACIFIC

PLAYER'S MANUAL

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INTRODUCTORY TUTORIAL

By the time you have completed this tutorial, and the destruction of the US Pacific Fleet at Pearl Harbour, you will have realized just how simple the game menus are to use.

Consult the Start Menu card and start up the disk. If you have a black & white monitor, type Cntl(B); you may find this screen modification easier to look at while the game is in progress. Type Cntl(B) again to return the monitor to its original condition.

Type (RET) until the cursor is positioned on the ‹GAME› line, then type (Y)(RET) to obtain the Scenario Menu (Menu E). Select the ‹PEARL› line with the cursor and type (Y)(RET) to obtain the Player Menu (Menu F). At this point in a game, the identity of the various force commanders are determined.

For the purpose of this introductory tutorial, the blissfully unaware Allied commanders will be controlled by the computer; you will take command of Vice Admiral Chuichi Nagumo's Pearl Harbour Strike Force. Select the ‹EDIT› line with the cursor and type (Y)(RET). Replace Nagumo's name with your own if you wish then type (RET) until the cursor is positioned on the ‹N› to the right of General Short's name. Type (Y)(RET) to place this luckless individual under the computer's control. Similarly, place all three Allied naval commanders under the computer's control. Type (ESC) to exit the display, select the ‹START› line on the Player Menu and type (Y)(RET) to obtain the Game Menu (Menu H).

Flip over the menu card and consult the Game Menus. The strategic map is displayed on the screen. Before issuing the orders which will destroy the US Pacific Fleet, we'll take a look at the forces under our command and the battlefield on which we'll fight. Examine Battle Map A. The Hawaiian Islands are in the bottom right–hand corner. To display the tactical map on the screen, select the ‹CLOUDS› line with the cursor and type (Y)(RET).

This is the Weather Report (Menu 2). The strategic cursor appears in the centre of the screen. The weather pattern (high clouds, low clouds and squalls) is displayed for the entire battlefield. Note that the weather forecast, including wind direction, for each 'hex–block' (this is the name we have given to the 3 by 3 groups of hexagons which make up each element of the strategic map) is shown in the space above the menu window. Furthermore, in the small display area under the menu window, the nine hexagons described by the current location of the strategic cursor are shown. Use the I,J,K,M keys to move the cursor in the direction you desire. For example, the weather over the Pearl Harbour 'hex–block' is clear, the forecast for that sector is clearing and the wind is from the west.

To see the map in greater detail, position the strategic cursor in the desired location and type (RET). The strategic map is replaced with a portion of the tactical map together with the block–shaped tactical cursor. To illustrate this, position the strategic cursor over the Pearl Harbour base on Oahu and type (RET). Most of the Hawaiian Island group is displayed. You may use the I,J,K,M keys or the 1–6 keys to move the tactical cursor. Unlimited scrolling is possible, however it is much easier to go back to the strategic map [type (ESC)] and use the strategic cursor to locate your destination.

Now to examine the forces at our disposal. Type (ESC) until Menu 1 is recovered, select the ‹ORDERS› line and type (Y)(RET) to obtain Menu 8. Note that Menus 1 and 5 have been bypassed since the selections to be made there are not necessary in the solitaire game we have just started.

Time and date appear above the menu window. The two ship silhouettes on the strategic map are our striking forces. The target silhouette (+) represents known enemy naval forces. In this case our spies (coastwatchers) in Pearl Harbour have provided the information.

There are three selections in the menu window. At the top of the window are your reports. The intelligence gleaned by your forces throughout the course of the game is stored for your analysis in these menus. At present, of course, very little is known other than the location of the US bases and the composition of the US task groups in port. Let's see what information is available.

Use the arrow keys to position the cursor over the ‹REPORTS› line and type (RET) to obtain Menu 7. Again there are three selections in the menu window. The top selection stores information on the current condition (where known) of enemy forces. Position the cursor over the ‹SIGHTED› line and type (RET) to obtain Menu 9 and another three selections, one each for air, naval and land base sightings. There are no enemy air sightings and thus you will be unable to access Menu 12. (Try it and see.) Select Menu 13. Sighted enemy task groups appear as target silhouettes on the strategic map. In this instance, there is one silhouette in Pearl Harbour.

In the four lines of text above the menu window, the composition of the enemy task group identified by the strategic cursor is summarized. Use the arrow keys to cycle the strategic cursor through the four task groups in Pearl Harbour and examine the contents of each. [CV's are aircraft carriers, BB's are capital warships such as battleships and heavy cruisers, DD's are minor warships such as light cruisers and destroyers and AX's are auxiliary vessels such as oilers, transports and tankers.] The prime target amongst these helpless warships is the battleship task group (BB=7). That will be our main target. It is worth noting here that sighting accuracy is more reliable in port than on the high seas.

Go back to Menu 9 and select Menu 14. There are four separate airfields at Pearl Harbour (Hickam, which includes the naval base and the marine airfield, Wheeler, Bellows and Haliewa) in addition to the recon facilities at Midway and the commercial facilities at Hilo. The arrow keys will cycle the strategic cursor through each airfield giving a summary, if known, of enemy aircraft numbers in the four lines above the menu window. The location of the chosen enemy airfield is displayed below the menu window. Our main targets are Hickam and Wheeler.

Go back to Menu 7. We have no friendly strikes in progress yet so there is no access to Menu 10. We can, however, have a look at Menu 11. Axis and Allied records to date can be examined from this menu. The information available on enemy losses is much less extensive and reliable than information on friendly forces. Select Menu 16. The first display summarizes the

condition of all ships and aircraft. Type (RET) to examine the next display. The condition of each carrier and land based squadron is displayed. In this instance there are six pages of report, one for each of the aircraft carriers. The Japanese have no land bases in this scenario. The final display gives a detailed damage report on every ship.

Go back to Menu 11 and select Menu 15. Only estimated reports of ships sunk and damaged and aircraft destroyed will appear. There are no other displays when viewing enemy records.

That's ‹REPORTS› finished with.

It is 9 p.m. (2100 hours), Saturday 6th December, 1941. Your Carrier Striking Force is 360 nautical miles to the north of Oahu. All hands have been called on deck and Admiral Yamamoto's battle order is read: "The rise or fall of the Empire depends upon this battle. Everyone will do his duty to the utmost." The flag carried by Admiral Togo's flagship *Mikasa* in the Battle of the Tsushima Straits thirty–six years earlier is raised aboard *Akagi*.

Go back to Menu 8 and select Menu 26. The first task group located is Nagumo's command task group. The ship cursor on the strategic map shows its position. Above the menu window is the name of the flagship, the weather condition for that 'hex–block', notification of the task force commander's presence or otherwise and the task force commander's name.

There are three other task groups under Nagumo's command. Use the arrow keys to cycle the ship cursor through them. They are the cover and escort groups for the carriers and the small Midway Destruction Unit.

Locate the command task group and type (RET) to obtain Menu 27. Select the ‹STATUS› line with the arrow keys and type (RET) to obtain Menu 29. The strategic map is replaced with a summary of the composition and status of the chosen task group. This is essentially an information screen; only the search pattern facility may be edited. To do so, type (RET) to cycle the cursor through the eight compass bearings. Type (Y)(RET) to select a particular bearing. To cancel a selection, type (N)(RET). For the purpose of this tutorial, we will leave the searching responsibility to the floatplanes aboard our four capital ships. All compass bearings should be left in the (N) condition. Every available strike plane will be conserved for the attack on Pearl Harbour.

Go back to Menu 27, select the ‹LIST› line with the arrow keys and type (RET) to obtain Menu 30. Each ship in the task group is listed together with a detailed damage report.

Go back to Menu 27 and select Menu 28. This is the key facility for issuing instructions to your naval forces. It is used to select the mission, order, objective or heading and speed for the task group.

The mission assigned to Nagumo's command TG is strike. Note here that support, escort and cover missions cannot be assigned to command TG's. Anchor and refuel orders are not possible in this scenario. A task group given a station order will maintain its current speed without leaving the hex it currently occupies. Current objectives may be cleared using the ‹CLEAR› line. A new objective (friendly ports, enemy bases or task groups) may be set by selecting the appropriate line and typing (Y)(RET). The strategic map is recovered and the arrow keys used to cycle the strategic cursor through the available targets. Note that if there are no targets in a particular group then you will not be able to access the routine. The objective assigned to Nagumo's command TG is Hickam.

The ‹STUDY MAP› line means just that and operates similarly to the weather report.

Position the cursor on the ‹SPEED› line and set the speed to 25 knots. The flank speed is the maximum speed which may be set for the task group.

The compass rose is used to select directional headings for task groups not given an objective. Task groups with an objective cannot access the compass rose.

The capital ship task group (flagship CA18) should be given a support mission and its speed set to 30 knots. The destroyer flotilla (flagship CL8) should be given an escort mission and its speed set to 30 knots. The Midway Destruction Unit has a bombard order. Once its bombardment mission has been completed, it will revert to a strike mission. Increase its speed to 20 knots.

We'll postpone an introduction to air operations for just a moment. It's only 9 p.m. so we have plenty of time to get our aircraft ready and spotted for tomorrow's battle.

Let's set the game in motion. Go back to Menu H. Select the ‹RUN› line and type (Y)(RET). Hour and date appear above the menu window. The minute hand in the menu window ticks by in five minute increments.

You may stop the clock at any time by typing (ESC). Furthermore, the clock will stop automatically whenever a new enemy sighting or update is recorded.

Allow the game to run for two hours. That is, type (ESC) to go back to Menu H when the clock shows 2300 hours.

Select Menu 19. The arrow keys will cycle through all the flat–tops in Nagumo's task force. Locate the flagship, *Akagi*, and select Menu 20. We'll look at the planes first. Select Menu 21. All of *Akagi's* aircraft are dispersed, i.e. below decks and not yet ready for action. There are a total of 63 aircraft divided among five squadrons. Type (RET) to obtain Menu 22. The dispersed station is displayed in detail. For each squadron, the following information is provided:– squadron number, plane type, initial strength, role (fighter, bomber, recon), crew number, assigned base and current strength (including damaged, armed and fuelled aircraft) in that station. For example, squadron 28 is 9 Zero aircraft.

Go back to Menu 20. We'll bypass the strike menu for the moment and examine the order menu. Select Menu 25. The arrow keys are used to cycle through all squadrons assigned to the carrier. Locate squadron 28. The first three lines of the display give the same information on the squadron as is shown in Menu 22. Other information now available is cruising speed, combat experience, fatigue and administration. Normal, extended and transfer ranges are shown; the number to the left of the slash is used when striking naval targets and the number to the right of the slash is used when striking land targets. For example, the Zeros of squadron 28 have a normal range against naval targets of 31 hexes there and back.

A squadron may elect to transfer to a land base. Squadrons may not transfer to other carriers. The ready order is used to arm and fuel planes in preparation for a proposed strike. The abort order is used to cancel a current mission and return the squadron to its base. Note that aircraft move to the take–off station once

they are fuelled and armed and that they are prone to fatigue accumulation whilst in this ready area. Put simply, don't leave squadrons in the ready area for long periods.

Having said that, we can return to Menu H and get the game going again. Switch on the clock and steam on the current heading until 0300 hours, 7 December. We are 280 nautical miles north of our target and it's time to ready the first wave.

Select Menu 19, locate the *Kaga* and select Menu 25. The squadrons to be readied aboard the *Kaga* are 30 (Zero), 50 (Kate a – with torpedo) and 51 (Kate b – with armour piercing bomb). To do this, use the arrow keys to select the chosen squadron and type (RET) until the cursor is on the ‹READY› line. Type (Y)(RET) to ready the chosen squadron, then use the arrow keys to select the next squadron and repeat the procedure. To cancel an order, position the cursor on the ‹ABORT› line and type (Y)(RET).

Locate each carrier in turn and ready the following squadrons. *Akagi* (28, 48, 49); *Soryu* (42, 52); *Hiryu* (34, 54, 55); *Shokaku* (36, 44); *Zuikaku* (38, 46).

To see how the arming and fuelling procedure works, recover Menu H and switch on the clock again. Allow 15 minutes to pass (0315 hours) then locate any carrier and select Menu 21. Use the arrow keys to cycle between stations and the (RET) key to examine their contents. As you can see, there's feverish activity in the hangars.

Switch on the clock and continue steaming until 0600 hours. We are now at the launching point some 220 nautical miles north of Pearl. It's time to 'climb Mt Niitaka'.

Locate the *Kaga* and select Menu 24. Before launching a strike it is necessary to select a target. Type (RET) until the cursor is on the ‹TASK GROUP› line then type (Y)(RET) and use the arrow keys to locate the battleship task group. Type (RET) to confirm the target.

Use the arrow keys to locate squadron 30, then type (RET) until the cursor is on the ‹COHESIVE STRIKE› line. Type (Y)(RET) then position the cursor on the ‹ARM FOR ESCORT› line and again type (Y)(RET). Locate squadrons 50 and 51 and arm both for strike.

Similarly, set strikes for the air groups of the other five carriers as follows. *Akagi* (target – Task Group 'battleships', cohesive; 28 esc, 48, 49 strike); *Soryu* (target – Task Group 'battleships', cohesive; 42, 52 strike); *Hiryu* (target – Task Group 'battleships', cohesive; 34 esc, 54, 55 strike); *Shokaku* (target – Land Base 'Hickam', cohesive; 36 esc, 44 strike) *Zuikaku* (target – Land Base 'Wheeler', cohesive; 38 esc, 46 strike).

Go back to Menu H and switch on the clock. All air groups should be underway by 0630 hours. The carrier task group will go on station until the air groups are recovered. If you wish to see the take–off and air group formation routines in action, select Menu 21 about 10 minutes after giving your orders and examine the various stations.

The second wave may be launched as soon as the first wave is underway. Note there is no need to ready the squadrons as a separate function prior to launching. A strike may be initiated by any 'free' squadron. Arming and fuelling occurs, then take–off.

Stop the clock about 0715 hours. The first wave is almost over the target and it's time to launch the second wave.

Locate each carrier in turn and send every available squadron against the target of your choice. Note that some fighter squadrons are not available since they are flying combat air patrol (CAP) over the task group. A squadron must have four available aircraft before it can be assigned to a strike mission.

About 0815 the first air attacks should be delivered against the sleeping Americans. The variety of combat noises coming from the speaker will indicate when the action actually starts. Wait until 0830 then stop the clock and ask for a current 'battle report'; i.e. select Menu 13. As before, information on the enemy task group appears above the menu window. However, task groups which have been attacked will have a 'battle report' display inside the menu window. See how much damage your bomber pilots have reported inflicting so far.

By 1400 hours, all aircraft skould have returned to their carriers. To observe our losses in detail, select Menu 16. The total number of lost and damaged aircraft should be very small. An estimation of total US losses can be gained from Menu 15. They will be a lot higher.

It's time to head for home. Locate Nagumo's command TG and select Menu 28. Clear the objective and select a NW heading. Leave the speed at 25 knots.

At 0200 hours, 8th December, the scenario will end. An 'end of game' display will appear below the menu window and the size of the Japanese victory will be shown.

Once a game has been completed, both friendly and enemy menus may be accessed. Select ‹ALLIES› from Menu 1 and then examine Menu 15 (i.e. from the Allied viewpoint).

Anyway, that's the end of the tutorial. Unfortunately, it will not be as easy to dispose of your next opponent.

USING THE GAME MENUS

Having played through the Introductory Tutorial you have, we hope, discovered how easy the game menus are to operate. Essentially all the commands used in the game are given through just three menus. These are termed 'action menus'. The remaining 27 menus are 'information menus', 'branch menus' or 'single function menus'. A complete list appears below.

(i) Branch Menus – These menus signpost the route to other menus. [1, 5, 6, 7, 8, 9, 11, **17**, 18, **19**, 20, **21**, **26**, 27]. Note that those branch menus identified in bold face also provide some information.

(ii) Information Menus – These menus provide information on the various forces and functions in the game. [2, 10, 12, 13, 14, 15, 16, 22, **23**, **29**, 30]. Note that those information menus identified in bold face possess a limited action function.

(iii) Action Menus – These are the centre of the game system. Aircraft and ships are given all their orders through them. [24, 25, 28].

(iv) Single Function Menus – [3, 4].

THE GAME MENUS.

Menu 1 {Nationality Select}

This is a branch menu and is used to select Axis or Allied forces. If either nationality is completely computer controlled, then this menu is bypassed and Menu 5 will be obtained directly from Menu H.

Menu 2 {Weather Report}

This is an information menu and displays the current location of the various weather elements. The strategic cursor appears in the centre of the display and may be moved by the I, J, K, M keys. The three lines of text above the menu window describe the weather for the hex-block indicated by the strategic cursor. Weather type, local forecast and wind direction are shown. The weather report is updated approximately every two hours. Prevailing weather is one of the most important tactical factors in the game. Bad weather, no matter what the other circumstances, will invariably ruin even the most carefully planned attack.

Menu 3 {Resign Utility}

This menu permits a premature 'end of game'. The procedure is identical to a normal 'end of game'.

Menu 4 {Save Game Utility}

The operation of this menu is described on the Start Menu Card.

Menu 5 {Area/Force Select}

This branch menu selects the particular land or naval force commanded by the player. Computer controlled forces are distinguished by a 'C'. This menu is bypassed if there is no more than one human player per nationality.

Menu 6 {Land Commander}

This branch menu allows the Land Commander to view his reports and examine and/or operate his bases.

Menu 7 {Report Select}

Intelligence reports are divided into three main categories. This branch menu allows the player to select between current enemy sightings, condition of friendly strikes and scenario performance to date. The menu, and its contents, is common to both Land and Naval Commanders.

Menu 8 {Naval Commander}

This branch menu allows the Naval Commander to view his reports and examine and/or operate his carriers and task groups.

Menu 9 {Enemy Sighting Select}

Information on enemy sightings is divided into three categories. This branch menu allows the player to select between known enemy air operations, naval operations and land base status.

Menu 10 {Friendly Strike Select}

This information menu will describe the status of friendly air strikes currently in progress. The strategic cursor appears on the map display to identify the strike while information regarding its status appears in the four lines of text above the menu window. The arrow keys are used to cycle through each report.

Menu 11 {Records Select}

This branch menu allows the selection and review of both friendly losses and reported enemy losses.

Menu 12 {Enemy Air Select}

This information menu will describe the status of enemy air formations currently in action against friendly forces.The strategic cursor appears on the map display to identify the enemy air formation 'while information regarding its status is shown in the four lines of text above the menu window. The arrow keys are used to cycle through each report.

Menu 13 {Enemy Naval Select}

This information menu serves two purposes. It describes and identifies sighted enemy task groups as well as providing a 'battle report' once an enemy task group has been engaged. The strategic cursor appears on the map display to identify the enemy task group while information regarding its status is shown in the four lines of text above the menu window. The arrow keys are used to cycle through each report. If the enemy task group has been previously engaged this day, a 'battle report' summarizing the estimated damage inflicted will appear in the menu window.

Sighting reports on enemy task groups may be generated by individual search planes, squadrons, submarines, friendly task groups, coastwatchers and friendly land bases. Sightings made by aircraft are generally the least reliable, especially if the enemy task group is in the open ocean.

Each newly reported sighting will remain available as a strike target for seven hours. The length of time remaining in which a sighting may be selected as a target is shown above the menu window. Should a previously spotted enemy group be resighted, the report will be updated and the strike time available reset to seven hours. Updated reports are generally more reliable.

Menu 14 {Enemy Land Select}

This information menu will indicate the numbers of known enemy aircraft on the chosen land base. Such information is available only during daylight hours. The strategic cursor identifies the base and the text above the menu window displays the information. The arrow keys are used to cycle around enemy bases.

Menu 15 {Allied Losses}

This information menu will present the Allied player with a detailed listing of his operational losses to date. Furthermore, the arrow keys can be used to obtain information on the current status of land bases and carriers. A full breakdown of the serviceability of aircraft squadrons, listed by carrier or land base, is provided. The Axis player will have access only to the operational loss report which will summarize his combined 'battle reports'. He should not rely too heavily on the accuracy of this information.

Menu 16 {Axis Losses}

This menu works almost identically to Menu 15. The difference is that the roles of the Axis and Allied players are reversed.

Menu 17 {Friendly Base Select}

This branch menu allows the Land Commander to select a particular base. The Allied or Axis cursor, as appropriate, will appear on the strategic map. The arrow keys are used to cycle around all bases in the commander's theatre until the chosen base is located. Note that the location of the base on the tactical map appears under the menu window.

Menu 18 {Base Operations Select}

This branch menu allows the Land Commander to review his aircraft availability and disposition, examine his airstrip and plot new search bearings, launch strikes against enemy land or naval targets, ready aircraft, transfer aircraft and abort air missions.

Menu 19 {Friendly Carrier Select}

This branch menu allows the Naval Commander to select a particular carrier. The large ship cursor will appear on the strategic map to identify the carrier while information regarding its status appears above the menu window. The arrow keys are used to cycle around all carriers in the commander's force until the chosen carrier is located. Note that the location of the carrier on the tactical map appears under the menu window.

Menu 20 {Carrier Operations Select}

This branch menu allows the Naval Commander to review his aircraft availability and disposition, launch strikes against enemy land or naval targets, ready aircraft, transfer aircraft and abort air missions.

Menu 21 {Plane Status Display}

This information menu allows the Land or Naval Commander to review aircraft dispositions at each of the bases/carriers under his command. On each land base or carrier, aircraft may be at any one of seven stations. These are Dispersed (in Hangar), Arming (and fuelling), Runway (or flight deck), Air Group (forming up over base/carrier), Combat Air Patrol, Landing Pattern and Just Landed. The arrow keys can be used to cycle around those stations containing aircraft.

Aircraft in the Combat Air Patrol (CAP) station will defend the base/task group from enemy air missions. In addition, some of these aircraft may be available to assist in repelling enemy air formations attacking other friendly forces within a range of 100 nautical miles. The likelihood of this interception is determined by the base/task group radar rating and the squadron admin rating. Each base/carrier will mount a standing CAP throughout daylight hours. Enemy air formations detected by advance radar warning will trigger an emergency CAP. Every available fighter will scramble to intercept the incoming hostiles. Only squadrons trained in night operations will fly emergency CAP at night.

Menu 22 {Squad Status Display}

This information menu allows the Land or Naval Commander to make a detailed examination of each of his base/carrier stations. Squadrons present in the chosen station are listed in numerical order. The data provided on each squadron is its aircraft type, original complement, crew number, role, current base/carrier and current strength in the station under examination. Furthermore, on-station aircraft may be damaged, armed and/or fuelled.

Aircrews will attempt to repair damaged aircraft at regular intervals throughout the day. The likelihood of success is dependent upon the extent of the damage and the fatigue rating of the squadron. Repair operations are suspended during periods of enemy air activity.

Menu 23 {Base Status Display}

There are two components to this display. The upper portion of the display provides information on the current status of the base. Fighter, bomber and port facilities, if present, are so indicated. Radar range is measured in hexes. The lower portion of the display is used to define a search pattern for the base. Any or all of the eight compass bearings may be activated or deactivated.

Air searches are carried out by individual aircraft. The criteria for selection priority are, in order, recon trained squadron, recon plane type and crew size. All selected compass bearings will be searched provided aircraft are available.

Menu 24 {Set Strike Routine}

This is the first of the three action menus which essentially run the game. It is the mechanism by which land-based and carrier-borne aircraft are ordered to attack enemy forces. Squadrons which meet the criteria necessary for strike selection appear in the upper portion of the display. The arrow keys are used to cycle through them. Basically, a squadron must have a minimum of four operational aircraft in either the dispersed or arming stations and not be assigned to any other mission (except ready) before it can be considered for strike selection. A strike may be directed against one of three target types.

Squadrons directed to attack port facilities will strike against enemy ships found in port and occasionally against task groups close by if sighting conditions are suitable. If no naval targets can be found, they will attack whatever airbase facilities are present. Note that anti-shipping ordnance is not very effective against base targets. There is no sighting requirement necessary to order a strike against this target type. Port facilities may be attacked by whatever aircraft are available and within range.

Squadrons directed to attack land bases will deliver their ordnance against the targeted enemy airfield. Enemy aircraft, if present at the base, will also be attacked. Dispersed aircraft are less vulnerable than those in the arming fuelling station. Again, there is no sighting requirement for this target type.

To launch a strike at a specific enemy task group first requires that this task group be spotted. Menu 13, as explained above, will list all current naval sightings. Strikes directed against a particular task group will fly to its last reported sighting and attempt to locate it. This may or may not be successful, depending upon the weather, the accuracy of the reported sighting and the size of the target. Furthermore, a more lucrative opportunity may replace the designated target.

Once the mission target has been selected, available squadrons may be assigned to it. The quality of the squadron, as expressed by its combat experience, level of fatigue and administrative ability, is shown in the

squadron display. Its operational ranges (measured in hexes) against naval targets (to the left of the slash) and base/port targets (to the right of the slash) are also shown. Squadrons within range of the target are shown as 'free'. Those out of range are shown as 'illegal'.

The range from the striking base or carrier to the target is shown in the boxed display. A strike–transfer base and range may also be displayed. Squadrons with insufficient endurance to strike the target at either normal or extended range will be permitted to strike–transfer to the alternate base shown in the boxed display. Squadrons on strike–transfer will rest overnight at the alternate base and depart for home early in the morning. Any damaged aircraft which have to be left behind will be 'appropriated' by local aircrews. Note particularly that you will have no control over a squadron on strike–transfer until it returns to its origin. A strike–transfer mission is quite different from a transfer mission. The latter will be described in Menu 25.

Strike missions comprising more than one squadron may be launched as 'cohesive'. Such squadrons will fly to the target at the same cruising speed and, hopefully, arrive more or less together. Cohesive missions take longer to form up and reach their target than independent missions. However, a cohesive order is essential if you wish to protect your bombers with a reliable fighter escort. The cruising speed of the slowest bomber squadron available at the base or carrier is shown in the boxed display. Note, however, that the cruising speed of a cohesive strike will be that of the slowest squadron actually participating. ETA (Estimated Time of Arrival) over target is calculated in hours for both cohesive and independent strikes. It will take twice this long for the strike to return to its origin. Care should be taken to avoid launching strikes which will not return until after nightfall. A strike may be designated as cohesive at any time in its preparation.

Only fighter squadrons may arm for escort. Fighter squadrons on independent escort missions will perform a fighter sweep over the target then strafe targets of opportunity. All squadrons with a bomb value or torpedo capability may arm for a strike. Bomb payloads are reduced to approximately half value at extended range. Torpedoes may only be carried at normal range. The target type and range determine the the ordnance to be carried. There is no facility for the player to interfere in the arming of his squadrons. Note that in strikes directed against ships in port, your air operations officer will decide the feasability of using torpedoes. Sometimes he will, sometimes he won't.

Strike preparation may be aborted at any time prior to exiting the menu. Should you decide to change your plans after exiting the menu, you must select Menu 25 and abort each squadron individually.

A strike mission may take anywhere from twenty minutes to three hours to prepare and launch. A second strike may not be prepared until the current strike has cleared the base/carrier or been aborted.

To summarize Menu 24. To strike an enemy force you must select a target, assign one or more squadrons to the mission and arm it for either escort or strike. Nothing else need be done by the player. The computer will move the aircraft through the base/carrier stations until all allocated squadrons are airborne and on their way to the target. The pace at which this process occurs, and the likelihood of accident, are determined by the current effectiveness of the squadron, the size and condition of the base/carrier, time of day and prevailing weather. A strike in progress may be aborted. It may not be diverted to any other purpose.

Menu 25 {Set Order Routine}

This is the second of the three action menus. All orders which may be given to friendly air formations other than strikes against enemy targets are issued from this menu. These are transfers to land bases, readying squadrons prior to allocating a strike target and issuing abort orders. Squadrons to which orders may be issued appear in the upper portion of the display. The arrow keys are used to cycle through them.

Both land–based and carrier–borne squadrons may transfer their centre of operations. This transfer may only be made to a land base. The maximum squadron capacity at any base is ten and may not be exceeded. Should you inadvertantly do so then that luckless squadron will disappear forever from the face of the earth. Before transferring a squadron, and especially if you intend relocating several of them, it is a good idea to check Menu 15 (if an Allied player) or Menu 16 (if an Axis player) to ensure that the new base will have the capacity to handle the newcomers. Damaged aircraft left behind by a transferring squadron are lost. Furthermore, the admin rating of the squadron will drop to zero on transfer and stay at zero for the remainder of the scenario. Returning a squadron to its original base will not restore its admin rating. Note that strike transfers, as explained in Menu 24, will not affect the admin rating. Large bombers (i.e. those with a crew rating greater than 2) which transfer to bases without bomber facilities will take an inordinate amount of time to arm and fuel. Only seaplane squadrons will be allowed to operate from 'water' airstrips.

In short, transferring squadrons is an emergency measure only. It should be used to evacuate aircraft from hopeless situations. Players using transfer operations to increase their striking power will generally find the loss of performance (and aircraft!) cancels out any benefit.

Squadrons not allocated to a strike mission may nonetheless be readied awaiting, for example, an imminent sighting or pre–dawn strike. The advantage of this order is that the time taken to prepare and launch a strike is reduced by 50% to 70% if the participating squadrons have been readied prior to being allocated to the strike mission. The disadvantage lies in increased vulnerability to the base/carrier and the strain on the aircrews. The fatigue rating of a squadron increases rapidly while in ready status.

Squadrons carrying out a strike or ready order may be aborted. A squadron with a transfer order may not be aborted after all its aircraft have cleared the base. Aborted squadrons return as quickly as possible to the dispersed station at their base of origin.

Menu 26 {Friendly Task Group Select}

This branch menu allows the Naval Commander to select a particular task group. The large ship cursor will appear on the strategic map to identify the task group while information regarding its status appears above the menu window. The arrow keys are used to cycle

through all the task groups in the commander's force until the chosen task group is located. Note that the location of the task group on the tactical map appears under the menu window.

Menu 27 {Task Group Operations Select}

This branch menu allows the Naval Commander to issue orders to his task groups, study the map, review the composition and condition of his ships, allocate search bearings and receive detailed damage reports.

Menu 28 {Task Group Orders}

This is the third and last of the vital action menus. It is the mechanism by which task groups are given their sailing orders, objectives and speed. There are five segments to the display. At the top of the screen is the current report on the task group. The flagship, mission, speed, heading and objective, where applicable are listed.

There are two types of missions to which a task group may be assigned. These are voluntary missions and involuntary missions. Only the four voluntary missions are listed in the second segment of the display. The three involuntary missions are transport, refuel and bombard. In the brackets adjacent to each voluntary mission will be a (+) or a (N). If the former is the case, that mission is currently not available to the task group. In the latter case, position the cursor over the bracket appropriate to the chosen mission and type (Y)(RET). All voluntary missions are available to task groups unless one of the following conditions prevails.

(i) Command task groups may not be allocated to support, escort or cover missions.

(ii) Transport and Refuel (both involuntary missions; i.e. the mission was allocated to them during scenario creation) groups may not change their mission to anything. Note that a transport mission will be aborted to a strike mission should a large enough disaster befall. It will not be able to unload cargo in this condition. We'll explain why this is. It is not really possible for the computer to court-martial a player for wilfully sending his men to certain death. Therefore, wherever we have felt that it was likely for this to happen, we have instructed the computer to take sufficent control of the force to prevent it. In this instance, the player still has control of his sometime transport group but, being unable to get victory points for unloading it, he is far more likely to send it scurrying for safety.

(iii) The current mission allocated to a group may not be re-entered. For example, a group with a strike mission will have a (+) adjacent to the strike line.

A strike mission is the primary combat mission of the game. In addition, however, non-command groups can be given subsidiary combat missions which will greatly facilitate task force manoeuver. These are escort, cover and support missions.

A task group with an escort mission will steam in the same hex as the command task group and if not already in that hex when the order is given, will attempt to get there as best it can. Escort groups provide direct anti-aircraft and anti-submarine protection for themselves and the command task group.

A task group with a cover mission will behave in one of two ways. Carrier task groups will steam 3-6 hexes ahead of the command task group and provide an air umbrella. Other task groups will steam 1-2 hexes ahead of the command task group and screen it against any enemy surface ships across the line of advance.

Support missions are almost the reverse of cover missions. Carrier groups with support missions will steam 3-6 hexes behind the command task group while providing air cover over it. Other groups will remain 1-2 hexes behind and move up to support the command group if it becomes threatened by surface forces.

In general, carrier groups should be given support or escort orders, capital ship groups should be given cover or escort orders and minor ship groups given escort orders. Historically, major capital ships were kept in support roles until quite late in the war. Hindsight would suggest they had a far more useful role as cover forces.

The third segment of the display lists the three over-ride orders which may be given to task groups. Task groups unable to take advantage of a particular over-ride order will have a (+) adjacent to them.

Only task groups containing a seaplane tender will have access to the 'anchor' order. On receiving such an instruction, a task group will proceed at its current speed to the nearest anchor point, drop anchor and begin launching search patrols along its allocated compass bearings.

Unless a task force contains at least one task group with a refuel mission, then this over-ride order will not be available. On receiving such an instruction, a task group will proceed at its current speed to the nearest refuelling group and begin fuelling until told to stop. Place the refuel mission task group on station once fuelling begins for speediest results. Once fuelling is completed, cancel the refuel over-ride and the group will revert to its previous orders. Note that the rate of refuelling is directly related to the speed of the refuelling task group. This is not done for historical accuracy, but rather as an inescapable consequence of the movement routines.

All task groups may go on station. While on station, a task group will remain in its present hex. Its speed, however, will not be affected.

The fourth segment of the display is the mechanism by which directional orders are given to task groups. The two basic mechanisms are by objective and by heading. If a task group currently has an objective, there is no access to the compass rose. Use the ‹CLEAR› line to cancel the objective and activate the compass rose. Note that only coastal enemy bases may be selected – if you select an inland base, your navigator will have an apoplectic fit!

The procedure for selecting objectives is the same in each instance. Position the cursor on the appropriate line in the objective list, type (Y)(RET) then use the arrow keys to locate the particular objective. Type (RET) to select it. The top display has altered to reflect your new objective. To steam by compass heading, clear any objective, then select the desired direction.

Surface to surface combat is initiated using this procedure. To engage an enemy task group in surface to surface combat, select the ‹TASK GROUP› line use the arrow keys to locate the chosen enemy task group. Note that only sighted enemy task groups may be selected as objectives.

One important point to note here is that task groups with cover or support missions will behave as though they have escort missions if the command task group is steaming by heading alone. (This restriction has no historical basis. It's a consequence of the way the computer handles naval orders.)

The fifth and final segment of the display is the simplest. The flank speed is the maximum speed at which the task group may steam. It may not be altered voluntarily. Current speed is shown above the flank speed line and may be altered at whim.

Menu 29 {Task Group Status}

There are two components to this display. The upper component provides information on the current status of the task group. The lower component is the mechanism by which each task group can launch a search pattern. Note that the search procedure for task groups is identical to that for land bases.

Menu 30 {List Ship Status}

This information menu lists each ship in the task group together with a damage report. Critical hits (i.e. damage not yet under control) are also noted.

ENDING A GAME

There are two ways to end a game of 'CAW". The first, already explained in the Game Menus, is the use of the Resign option. The second is to wait until the time limit for the scenario runs out. Once this happens, an 'end of game' message will appear under the menu window and the game will stop. It may not be restarted. Every menu on either side may now be accessed.

The computer will display one of four results. These are 'a draw', 'Axis win', 'Allied win' and 'by points'.

A draw will occur if both sides have been given General Withdrawal Orders as explained in the section on the computer's role.

An Allied (or Axis) win will occur automatically if the opposing forces only receive a General Withdrawal Order.

A 'by points' result indicates that the winner is determined by the player who has achieved the most points. Furthermore, certain scenarios have special victory conditions attached to them.

THE COMPUTER'S ROLE

It's difficult to know where to begin this section, and even what to put in it. The computer does so much. To the point, in fact, where we're no longer certain exactly how some things happen. There's 80K of crushed machine code driving the game.

To attempt to describe the algorythms the computer uses in even its simplest routines would take a lot of space. Further, they will tell you little more than you can deduce from examining the scenario data. A look through the Design Manual will illustrate this point more clearly. The huge range of objective criteria evaluated for a scenario has kept the use of abstraction to a bare minimum. The more and better your men are, both moral and physical, the more you can expect of them.

However, there is one important role which needs to be explained thoroughly. What happens to damaged ships and smashed task groups? The computer continually evaluates the condition of all ships in play. Ships no longer able to keep up with the task group or otherwise unfit for service are dismissed from the task group and ordered to the rear areas out of harm's way. The player has no control over this.

Once a task group has no serviceable ships left, its silhouette disappears from the map.

General Withdrawal Orders are issued to all the naval forces of one side if certain misfortunes occur. A message will appear below the window in Menu 8 informing you of the event. Computer controlled forces will immediately begin withdrawing from the field. Human controlled forces will remain under their commander's control. However, no further transport or bombard missions will be possible.

Submarine operations are handled entirely by the computer. Their primary role is reconnaissance. Do not be surprised if your submarines fail to sink anything in a scenario. Historically, it was almost impossible to sink any ship going faster than 20 knots and furthermore anti-submarine detection equipment of that period was pretty well useless when the escorts were travelling over 20 knots. That is not to say you can't be sunk by a submarine. You can always get unlucky.

Finally, if you really do want to know how the computer gets through so much so quickly, please write to us. Try to keep your questions as simple as possible; i.e. so that we can write simple and short answers.

THE SCENARIOS

Each scenario is presented in a similar format. An Allied briefing and 'order of battle' is followed by a Japanese briefing and 'order of battle'. Any special conditions for victory are described. Finally, a few suggestions are made to create 'almost happened, could have happened' variations.

Before attempting any of the suggested variations, we highly recommend you consult the Design Manual (DM) and create the 'Raid on Ceylon' scenario.

The technical information necessary to construct the scenario variations is included in Appendix A.

** denotes Task Force Flagship
* denotes Task Group Flagship

SCENARIO ONE

PEARL HARBOUR (6–8 Dec, 1942)

Allied Briefing.

Japanese forces are known to be on the move in South East Asia and it appears inevitable that war will break out in a few days. The Philippines have been warned of possible enemy attack. There is no real concern for the sleepy fleet at Pearl Harbour. The 'little yellow men' would never dream of striking at the heart of the United States naval strength in the Pacific.

There are no commands on the Allied side worth playing in the historical version of this scenario. See the suggested variations below for some possible ideas.

Allied Order of Battle.

Naval Forces Available

Task Force 0 (Kimmel)

TG 1
7 BB – Nevada(BB36), Oklahoma(BB37), Arizona(BB39), Tennessee(BB43), California(BB44), Maryland**(BB46), West Virginia(BB48)

TG 2
1 CA – New Orleans*(CA32)
6 CL – Raleigh(CL7), Detroit(CL8), Phoenix(CL46), Honolulu(CL48), St Louis(CL49), Helena(CL50)

TG 3
34 DD

TG 7
1 BB – Pennsylvania*(BB38)
1 CA – San Francisco(CA38)
3 DD

Task Force 1 (Halsey)

TG 4
1 CV – Lexington**
3 CA – Chicago(CA29), Portland(CA33), Astoria(CA34)
7 DD

Task Force 2 (Fletcher)

TG 5
1 CV – Enterprise**
3 CA – Salt Lake City(CA25), Northampton(CA26), Chester(CA27)
12 DD

TG 6
1 CA – Minneapolis*(CA36)
3 DD

Submarines (0)

Naval Air Forces Available

Enterprise – 18 F4F–3, 35 SBD–3, 14 TBD–1
Lexington – 20 F2A–3, 36 SBD–3, 16 TBD–1

Land Based Air Forces Available

Theatre 0 (Short)

Hickam – 10 F4F3A, 16 SB2U3, 14 SBD–3, 17 B–18A, 7 A–20C, 5 B–17C, 26 PBY–4, 18 PBY–5
Wheeler – 79 P–40B, 30 P–36A
Bellows – 12 P–40C
Haliewa – 8 P–40B, 6 P–36A
Midway – 12 PBY–4

Japanese Briefing.

The plans are laid and the time is ripe. Pearl Harbour is full of battleships. One single blow may well win the war before it starts. Only the whereabouts of the missing US carriers is needed to fully destroy the offensive capability of the USN.

Nagumo's task force is the only command position available to the Japanese player. It is almost indestructable.

Japanese Order of Battle.

Naval Forces Available

Task Force 0 (Nagumo)

TG 1
6 CV – Kaga, Akagi**, Hiryu, Soryu, Shokaku, Zuikaku

TG 2
2 BC – Hiei(BC2), Kirishima(BC3)
2 CA – Chikuma(CA17), Tone*(CA18)
2 DD

TG 3
1 CL – Abukuma*(CL8)
7 DD

TG 4
2 DD

Submarines (3)

Naval Air Forces Available

Kaga – 18 Zero, 27 Val, 18 Kate
Akagi – 18 Zero, 27 Val, 18 Kate
Hiryu – 18 Zero, 27 Val, 18 Kate
Soryu – 18 Zero, 27 Val, 18 Kate
Shokaku – 18 Zero, 27 Val, 18 Kate
Zuikaku – 18 Zero, 27 Val, 18 Kate

Special Victory Conditions.

None.

Suggested Variations.

(a) United States Forewarned. The US forces do not begin the game in a surprised condition (DM,p8).

(b) *Saratoga* Available. The *Saratoga* is transferred from San Diego to Pearl Harbour in time to join her sister ship Lexington on 6th December, 1941. A suggested air complement is 20 F4F–3, 32 SBD–3, 12 TBD–1. (DM, p3,4,6,8).

SCENARIO TWO

CORAL SEA (3–10 May, 1942)

Allied Briefing.

The time is 2000 hours, 3rd May 1942. Cryto–analysts have provided the following information. A Japanese invasion force of eighteen troop transports protected by six heavy cruisers, at least one aircraft carrier and 25 other ships has assembled at Rabaul and is ready to strike south, probably at Port Moresby, at any moment. Furthermore, a major carrier striking force left Truk early on May 1st.

TF 0 (Fitch) is the most interesting command position for the Allied player.

Allied Order of Battle.

Naval Forces Available

Task Force 0 (Fitch)

TG 1
1 CV – Yorktown*
3 CA – Chester(CA27), Portland(CA33), Astoria(CA34)
4 DD

TG 2
1 CV – Lexington
2 CA – New Orleans(CA32), Minneapolis**(CA36)
5 DD

TG 3
2 CA – Chicago(CA29), Australia*
1 CL – Hobart
2 DD

TG 4
2 AO – Tippecanoe(AO21), Neosho*(AO23)
2 DD

TG 5
1 AV – Tangier*

Submarines (1)

Naval Air Forces Available

Lexington – 21 F4F–3, 36 SBD–3, 16 TBD–1
Yorktown – 19 F4F–3, 37 SBD–3, 13 TBD–1
Tangier – 14 PBY–5

Land Based Air Forces Available

Theatre 0 (5th Air Force)

Townsville – 16 P–39D, & A–24, 10B–25B, 41B–26B, 7 Hud–1, 17B–17E, 5 PBY–4
Pt Moresby – 34 P–400, 7 P–40E, 6 PBY–4

Japanese Briefing.

Operation 'MO' (the amphibious invasion of Port Moresby) is ready to be implemented. A large capital ship force is available to protect the vulnerable transports and distant cover is available from the two modern flat–tops of CarDiv 5. Intelligence reports no enemy naval activity west of the Fijis. The invasion is expected to be another milk–run.

Both TF 0 (Takagi) and 1 (Abe) offer quite a challenge to the Japanese player. Theatre 0 (Inouye) also has some interesting options.

Japanese Order of Battle.

Naval Forces Available

Task Force 0 (Takagi)

TG 1
2 CV – Shokaku, Zuikaku
2 CA – Haguro(CA6), Myoko**(CA7)
6 DD

Task Force 1 (Abe)

TG 2
1 ML – Tsugaru**(ML21)
12 TR

TG 3
1 CL – Yubari*(CL14)
4 DD

TG 4
1 AV – Kamikawa
2 CL – Tatsuta(CL1), Tenryu*(CL2)

TG 5
1 CVL – Shoho*
1 DD

TG 6
4 CA – Furutaka(CA1), Kako(CA2), Aoba*(CA3), Kinugasa(CA4)
1 DD

Task Force 2 (Shima)

TG 7
1 ML – Okinoshima**(ML11)
1 MLC – Koei Maru(MLC1)
2 DD
1 TR

Submarines (6)

Naval Air Forces Available

Shokaku – 18 A6M2, 20 D3A2, 22 B5N2
Zuikaku – 18 A6M2, 21 D3A2, 22 B5N2
Shoho – 8 A6M2, 4 A5M4, 6 B5N2
Kamikawa – 8 F1M2

Land Based Air Forces Available

Theatre 0 (Inouye)

Rabaul – 45 A6M2, 19 G3M2, 22 G3M3, 45 G4M1, 12 H8K1
Lae – 17 A6M2
Shortland – 16 F1M2, 8 H6K4
Tulagi – 12 A6M2N, 12 H6K4

Special Victory Conditions.

In addition to the provisions of Chapter 4 (Ending a Game), the Japanese must land at least 20 victory points of troops at Port Moresby.

Suggested Variations.

(a) Increased US Carrier Strength. Unknown to the Japanese, two additional carriers, *Enterprise* and *Hornet* were barely 48 hours from joining in the battle. What if they had arrived a little earlier? Add CV's Enterprise (22 F4F–3, 34 SBD–3, 16 TBD–1) and Hornet (20 F4F–3, 34 SBD–3, 11 TBD–1). (DM, p3,4,5,6,8).

SCENARIO THREE

MIDWAY (3–6 Jun, 1942)

Allied Briefing.

Cryptoanalysis has provided a complete picture of Japanese intentions. A major carrier striking group, well supported by battleships and heavy cruisers is enroute to Midway to cover the invasion of that tiny island by seasoned SNLF troops. A decisive battle is being sought by the Japanese Navy. You must beat them back, preserve Midway and keep your fleet alive. This will be no mean achievement.

Spruance's task force is the one to command in the scenario. It's a very hard job. Also interesting are the options available to the Midway command.

Allied Order of Battle.

Naval Forces Available

Task Force 0 (Spruance)

TG 1
2 CV – Enterprise**, Hornet
2 CA – Northampton(CA26), Minneapolis(CA36)
1 CL – Atlanta(CL51)
6 DD

TG 2
3 CA – Pensacola(CA24), New Orleans*(CA32), Vincennes(CA44)
5 DD

TG 3
1 CV – Yorktown*
2 CA – Portland(CA33), Astoria(CA34)
6 DD

TG 4
2 AO
2 DD

Task Force 1 ('French Reef')

TG 5
2 AV – Chandeleur, Pocomoke**
1 DD

Submarines (11)

Naval Air Forces Available

Yorktown – 25 F4F–4, 37 SBD–3, 13 TBD–1
Enterprise – 27 F4F–4, 38 SBD–3, 14 TBD–1
Hornet – 27 F4F–4, 37 SBD–3, 15 TBD–1
Chandeleur – 8 PBY–5
Pocomoke – 8 PBY–5

Land Based Air Forces Available

Theatre 0 (Midway)

Midway – 21 F2A–3, 7 F4F–3, 18 SB2U3, 16 SBD–2, 6 TBF–1, 4 B–26B, 17 B–17E, 14 PBY5A
Pearl Harbour – 40 P–40E, 22 A–20C, 16 PBY5A

Japanese Briefing.

'A mighty battle is upon us which will win the war at a single stroke'. The cream of our naval aviators, the veterans of CarDivs 1 and 2, are available to lead in the destruction of the hated US carriers. The invasion of Midway will be the bait that draws the USN within the range of our striking power. The USN must be defeated utterly. At the very most they can have two fleet carriers ready for action. Our submarine picket screen will give ample warning of their approach.

Nagumo's striking force has the most to do although both Kondo's support force and Kurita's transport force offer some exciting possibilities.

Japanese Order of Battle.

Naval Forces Available

Task Force 0 (Yamamoto)

TG 1
3 BB – Nagato(BB5), Mutsu(BB6), Yamato**(BB7)
2 DD

TG 2
1 CVL – Hosho*
1 DD

TG 3
1 CL – Sendai*(CL14)
6 DD

TG 4 (Available 6th June)
2 AO
1 DD

Task Force 1 (Nagumo)

TG 5
4 CV – Kaga, Akagi**, Hiryu, Soryu
3 DD

TG 6
2 BC – Kirishima(BC3), Haruna(BC4)
2 CA – Chikuma(CA17), Tone*(CA18)
4 DD

TG 7
1 CL – Nagara*(CL7)
4 DD

TG 8 (Available 5th June)
5 AO
1 DD

Task Force 2 (Kondo)

TG 9
2 BC – Kongo(BC1), Hiei(BC2)
4 CA – Haguro(CA6), Myoko(CA7), Atago**(CA10), Chokai(CA12)
3 DD

TG 10
1 CVL – Zuiho*
1 DD

TG 11
1 CL – Yura*(CL9)
4 DD

TG 12 (Available 6th June)
5 AO

Task Force 3 (Kurita)

TG 13
4CA – Mogami(CA13), Mikuma(CA14), Suzuya(CA15), Kumano*(CA16)
2 DD

TG 14
13 TR – TR 1**

TG 15
1 CAV – Chitose*
1 AV – Kamikawa
1 DD

TG 16
1 CL – Jintsu*(CL15)
10 DD

Submarines (12)

Naval Air Forces Available

Kaga – 21 A6M2, 21 D3A2, 30 B5N2
Akagi – 21 A6M2, 21 D3A2, 21B5N2
Soryu – 21 A6M2, 21 D3A2, 21B5N2
Hiryu – 21 A6M2, 21 D3A2, 21B5N2
Hosho – 8 D3A1
Zuiho – 12 A6M2, 12 B5N2
Chitose – 16 F1M2, 4 E13A1
Kamikawa – 8 F1M2, 4 E13A1

Special Victory Conditions.

In addition to the provisions of Chapter 4 (Ending a Game), the Japanese must land at least 24 victory points of troops at Midway.

Suggested Variations.

(a) Concentration of Effort. In conjunction with the Midway operation, the Japanese also invaded Attu and Kiska Islands in the Aleutian chain. This was essentially a pointless exercise. Far better use could have been made of the forces. Thus, add CV Junyo (18 A6M2, 18 D3A1, 9 B5N2) and CV Hiyo (18 A6M2, 18 D3A1, 9 B5N2) to Nagumo's striking force. (DM, p3,4,5,6,8).

(b) More US Carriers. The Saratoga had not completed repairs from a submarine torpedo hit in January. Assume this process had been accelerated. Add CV Saratoga with 27 F4F–4, 36 SBD–3, 15 TBD–1. The Wasp was still enroute from the Mediterranean. Assume she had returned a little sooner. Add CV Wasp (27 F4F–4, 25 SBD–3, 12 TBF1C) to the Allied force. (DM, p3,4,5,6,8).

SCENARIO FOUR

EASTERN SOLOMONS (22–27 Aug, 1942)

Allied Briefing.

US marines have established themselves ashore on Guadalcanal and have just made Henderson airfield operational. A Japanese counter–attack is expected at any moment. Intercepted Japanese naval messages indicate a major attempt will be made to land troops on the island under the cover of the only two large carriers remaining under Yamamoto's command. Three flat–tops are available to thwart the Japanese plan and for the first time the US is set to enjoy a substantial carrier plane superiority.

Fletcher's task force is the only naval command position for the Allies in this scenario. Both 5th and 13th Air Forces have a lot of planes under their command.

Allied Order of Battle.

Naval Forces Available

Task Force 0 (Fletcher)

TG 1
1 CV – Saratoga**
1 CA – Minneapolis(CA36)
4 DD

TG 2
1 CV – Enterprise*
1 CL – Atlanta(CL51)
3 DD

TG 3
1 CV – Wasp*
1 CL – San Juan(CL54)
3 DD

TG 4
2 CA – Salt Lake City(CA25), San Francisco*(CA38)
4 DD

TG 5
1 BB – North Carolina*(BB55)
2 CA – New Orleans(CA32), Portland(CA33)
4 DD

TG 6
3 AO
2 DD – Clark*(DD361)

Submarines (6)

Naval Air Forces Available

Saratoga – 34 F4F–4, 37 SBD–3, 16 TBF1C
Enterprise – 36 F4F–4, 36 SBD–3, 15 TBF1C
Wasp – 29 F4F–4, 30 SBD–3, 10 TBF1C

Land Based Air Forces Available

Theatre 0 (5th Air Force)
Cooktown – 7 Bfr F, 10 Bft–1, 38 B–26B, 19 B–25B, 20 B–17E, 4 Hud3A
Pt Moresby – 22 P–39D, 17 P–40E, 12 A–20C, 14 B–26B, 13 B–25B, 4 PBY–4
Gili–Gili – 32 P–40E

Theatre 1 (13th Air Force)
Henderson – 19 F4F–4, 12 SBD–3
Ndeni – 6 PBY–5
Espiritu – 14 P–400, 12 F4F–4, 11 B–17E, 4 Hud3A, 6 PBY5A

Japanese Briefing.

American troops have captured Guadalcanal and must be expelled immediately. CarDiv 5 (*Shokaku* and *Zuikaku*) is available to eliminate the two US carriers known to be in the area and ensure the reinforcing troops can disembark safely. The 25th Air Flotilla in Rabaul is also available to assist in neutralizing Henderson Field.

Nagumo's force is the main striking force for the Japanese in this scenario. Mikawa's force is the main transport group bound for Henderson Field while Shima's small force is the ill–conceived operation to capture Milne Bay (Gili–Gili) on the Papuan peninsula.

Japanese Order of Battle.

Naval Forces Available

Task Force 0 (Nagumo)

TG 1
2 CV – Shokaku**, Zuikaku
6 DD

TG 2
1 CVL – Ryujo
1 CA – Tone*(CA18)
2 DD

TG 3
2 BC – Hiei(BC2), Kirishima(BC3)
3 CA – Suzuya(CA15), Kumano(CA16), Chikuma*(CA17)
1 CL – Nagara(CL11)
3 DD

TG 4
1 CAV – Chitose*
1 DD

TG 5
5 CA – Haguro(CA6), Myoko*(CA7), Atago(CA9), Maya(CA11), Takao(CA12)
1 CL – Yura(CL13)
5 DD

TG 6 (Available 24th August)
1 BB – Mutsu*(BB6)
4 AO
3 DD

Task Force 1 (Mikawa)

TG 7
4 CA – Furutaka(CA1), Aoba*(CA3), Kinugasa(CA4), Chokai(CA10)
4 DD

TG 8
1 CL – Jintsu**(CL15)
4 DD
3 TR

Task Force 2 (Shima)

TG 9
1 DD – Oite**(DD11)
1 TR

TG 10
2 CL – Tatsuta(CL1), Tenryu*(CL2)
2 DD

Submarines (12)

Naval Air Forces Available

Shokaku – 26 A6M2, 27 D3A2, 18 B5N2
Zuikaku – 27 A6M2, 24 D3A2, 4 D4Y1, 18 B5N2
Ryujo – 19 A6M2, 16 B5N2
Chitose – 8 F1M2, 6 E13A1

Land Based Air Forces Available

Theatre 0 (Inouye)
Rabaul – 37 A6M2, 12 G3M3, 31 G4M1, 5 H8K1
Gasmata – 10 A6M2, 12 D3A2, 6 B5N2, 4 H6K5
Lae – 18 A6M2, 9 D3A2
Buna – 7 A6M2
Buin – 8 A6M2
Shortland – 9 A6M2N, 7 H6K5

Special Victory Conditions.

In addition to the provisions of Chapter 4 (Ending a Game), the Japanese must land at least 16 victory points of troops at Guadalcanal and/or Gili–Gili. The Allies must prevent any troops from landing at Guadalcanal.

Suggested Variations.

(a) Better Weather. As you will find throughout the course of the game, the weather is execrable. Change the long term forecast to clearing and all 'building up' sector forecasts to 'stable'. (DM, p7,8).

(b) Better Air Base Development. Buin, on the southern tip of Bougainville, was never properly developed as an air base and consequently the Japanese were never able to effectively suppress Henderson Field. Assume they had concentrated on developing these facilities. Increase Buin's airstrip number to 4, add bomber facilities and increase the AA to 6/10. Relocate squadrons 43 and 69 from Rabaul to Buin and squadrons 57 and 63 from Gasmata to Buin. (DM, p5,6).

SCENARIO FIVE

SANTA CRUZ (24–29 Oct, 1942)

Allied Briefing.

The situation on Guadalcanal is worsening. Japanese ground forces almost captured the airfield on the night of the 15th October and since that time almost ceaseless naval shelling and bombing raids from Rabaul have made air operations for the Cactus Air Force nearly impossible. The *Wasp* has been sunk by submarine and the *Saratoga* damaged. *Hornet*, fresh from the repair yards at Pearl and *Enterprise*, still with some residual damage from the Eastern Solomons battle are all that stand between the IJN and the battered marines on Guadalcanal. CarDiv 5 is once again on the prowl and this time reinforced by CarDiv 4 (*Junyo* and *Hiyo*). Japanese troops must be stopped from landing and Henderson Field kept operational.

Kinkaid's force is the only naval force available to the Allied player. Again, it's a tough situation for the Allies.

Allied Order of Battle.

Naval Forces Available

Task Force 0 (Kinkaid)

TG 1
1 CV – Enterprise**
1 BB – South Dakota(BB57)
1 CA – Portland(CA33)
1 CL – San Juan(CL54)
8 DD

TG 2
1 CV – Hornet*
2 CA – Pensacola(CA24), Northampton(CA26)
2 CL – Juneau(CL52), San Diego(CL53)
6 DD

TG 3
1 BB – Washington*(BB56)
1 CA – San Francisco(CA38)
2 CL – Helena(CL50), Atlanta(CL51)
6 DD

Submarines (7)

Naval Air Forces Available

Enterprise – 34 F4F–4, 36 SBD–3, 12 TBF1C
Hornet – 36 F4F–4, 36 SBD–3, 15 TBF1C

Land Based Air Forces Available

Theatre 0 (5th Air Force)
Cooktown – 14 P–40E, 20 B–26B, 7 B–25B, 14 B–17E
Pt Moresby (7 mile) – 14 P–39D, 9 A–20C, 7 Hud3A, 29 B–26B, 26 B–25B, 26 B–17E, 5 PBY–5, 7 PBY5A
Pt Moresby (12 mile) – 29 P–40E, 13 Bfr F, 10 Bft 1
Gili–Gili – 15 P–40E, 6 PBY5A

Theatre 1 (13th Air Force)
Henderson – 5 P–39D, 34 F4F–4, 12 SBD–3, 5 TBF1C
Ndeni – 8 PBY–5
Espiritu – 10 P–39D, 10 F4F–4, 7 Hud3A, 18 B–17E, 8 PBY–5

Japanese Briefing.

The Japanese Army did not inform the Japanese Navy until the 22nd October that the plan to recapture Henderson Field had failed. Furious, Yamamoto has ordered his carriers once more into the Solomons to finally put an end to the menace posed by the ever–present US carrier groups and cut Guadalcanal from its source of supply once and for all.

Nagumo's force is the carrier striking group. Mikawa commands a small transport and support group.

Japanese Order of Battle.

Naval Forces Available

Task Force 0 (Nagumo)

TG 1
2 CV – Shokaku**, Zuikaku
1 CVL – Zuiho
1 CA – Kumano(CA13)
8 DD

TG 2
4 CA – Myoko*(CA7), Atago(CA9), Maya(CA11), Takao(CA12)
1 CL – Isuzu(CL9)
6 DD

TG 3
2 BC – Kongo(BC1), Haruna*(BC4)
2 DD

TG 4
2 BC – Hiei(BC2), Kirishima(BC3)
3 CA – Suzuya(CA16), Chikuma(CA17), Tone*(CA18)
1 CL – Nagara(CL11)
8 DD

TG 5
1 CV – Junyo*
2 DD

TG 6
4 AO
1 DD – Nowake*(DD96)

Task Force 1 (Mikawa)

TG 7
1 CA – Chokai**(CA10)
1 CL – Yura(CL13)
4 DD

TG 8 (Available 26th October)
3 DD

Submarines (7)

Naval Air Forces Available

Shokaku – 13 A6M2, 14 A6M3, 18 D3A2, 18 B5N2
Zuikaku – 14 A6M2, 13 A6M3, 18 D3A2, 18 B5N2
Zuiho – 21 A6M2, 12 D3A2, 6 B5N2
Junyo – 18 A6M2, 18 D3A1, 9 B5N2

Land Based Air Forces Available

Theatre 0 (Inouye)
Rabaul (1) – 24 A6M2, 6 B5N2, 12 G3M3, 35 G4M1, 7 H6K5
Rabaul (2) – 14 A6M3, 18 D3A1
Gasmata – 22 A6M2, 13 D3A2, 9 B5N2, 14 G3M3
Lae – 18 A6M2, 8 D3A2
Buin – 17 A6M2
Shortland – 8 A6M2N, 12 H8K1

Special Victory Conditions.

None.

Suggested Variations.

(a) *Hiyo* Available. The *Hiyo* developed engine trouble prior to the battle and was sent back to Truk for repairs. Assume this problem had not arisen. Add CV *Hiyo* with 15 A6M2, 18 D3A1, 9 B5N2. Note these aircraft are included in the Japanese land based air forces since the air group was flown off when the *Hiyo* returned to Truk. Remove squadron 51 from Rabaul (1), squadron 63 from Rabaul (2) and squadron 75 from Gasmata. (DM, p3–8).

(b)Ineffective Submarines. The Japanese submariners enjoyed their greatest successes of the war in the waters around Guadalcanal in this period. Assume they had been less fortunate. Add CV Wasp (27 F4F–4, 24 SBD–3, 10 TBF1C), CV Saratoga (32 F4F–4, 30 SBD–3, 11 TBF1C) and BB North Carolina (BB55). (DM, p3–8).

SCENARIO SIX

PHILIPPINE SEA (16–21 Jun, 1944)

Allied Briefing.

The Japanese are known to have 8 carriers assembled at Tawi–Tawi in the Philippines. These ships, together with their support and escort vessels, up–anchored on the evening of the 15th and are expected to reach the Marianas in 2–3 days. The US carrier forces have the dual role of protecting the transports reinforcing the invasion of Saipan and destroying the remains of Japanese naval air power. The carriers must do it alone. There is no land based air umbrella to provide protection.

Mitscher's Fast Carrier Force is the most enjoyable command for the Allied player. There are 15 flat–tops in it, so be aware it will take a lot of work to get the best from your men.

Allied Order of Battle.

Naval Forces Available

Task Force 0 (Mitscher)

TG 1
2 CV – Yorktown, Hornet*
2 CVL – Belleau Wood, Bataan
3 CA – Baltimore(CA68), Boston(CA69), Canberra(CA70)
1 CLA – Oakland(CLA95)
12 DD

TG 2
2 CV – Bunker Hill*, Wasp
2 CVL – Monterey, Cabot
3 CL – Santa Fe(CL60), Mobile(CL63), Biloxi(CL80)
12 DD

TG 3
2 CV – Enterprise, Lexington**
2 CVL – Princeton, San Jacinto
1 CA – Indianaplois(CA35)
3 CL – Cleveland(CL55), Montpelier(CL57), Birmingham(CL62)
1 CLA – Reno(CLA96)
9 DD

TG 4
1 CV – Essex*
2 CVL – Cowpens, Langley
3 CL – Vincennes(CL64), Houston(CL81), Miami(CL89)
1 CLA – San Juan(CLA54)
14 DD

TG 5
7 BB – North Carolina*(BB55), Washington(BB56), South Dakota(BB57), Indiana(BB58), Alabama(BB60), Iowa(BB61), New Jersey(BB62)
5 CA – New Orleans(CA32), Portland(CA33), Minneapolis(CA36), San Francisco(CA38), Wichita(CA45)
12 DD

Task Force 1 (Turner)

TG 6
4 BB – Tennessee(BB43), California*(BB44), Colorado(BB45), Maryland(BB46)
7 DD

TG 7
3 CVE – Sangamon, Suwanee, Chenango*
7 DD

TG 8
1 AGC – Eldorado**(AGC11)
7 DD
2 DE
2 APA
5 AP

Task Force 2 (Conolly)

TG 9
3 BB – Pennsylvania(BB38), New Mexico(BB40), Idaho*(BB42)
2 CL – Honolulu(CL48), St Louis(CL49)
8 DD

TG 10
4 CVE – Fanshaw Bay, Midway*, Gambier Bay, Nehenta Bay
4 DD

TG 11
1 AGC – Catoctin**(AGC5)
9 DD
2 DE
2 APA
5 AP

Submarines (10)

Naval Air Forces Available

Enterprise – 34 F6F–3, 22 SBD–5, 14 TBF1C
Essex – 44 F6F–3, 36 SB2C1, 14 TBF1C
Yorktown – 46 F6F–3, 40 SB2C1, 16 TBF1C
Hornet – 40 F6F–3, 34 SB2C1, 18 TBF1C
Lexington – 42 F6F–3, 34 SBD–5, 16 TBF1C
Bunker Hill – 42 F6F–3, 32 SB2C1, 18 TBF1C
Wasp – 38 F6F3N, 32 SB2C1, 18 TBF1C
Princeton – 24 F6F–3, 10TBF1C
Belleau Wood – 26 F6F–3, 10TBF1C
Bataan – 24 F6F–3, 8TBF1C
Cowpens – 24 F6F–3, 8TBF1C
Monterey – 20 F6F–3, 8TBF1C
San Jacinto – 24 F6F–3, 8TBF1C
Cabot – 24 F6F–3, 10TBF1C
Langley – 22 F6F–3, 10TBF1C
Sangamon – 22 F6F–3, 8TBF1C
Suwanee – 22 F6F–3, 10TBF1C
Chenango – 22 F6F–3, 8TBF1C
Fanshaw Bay – 16 FM–2, 12TBF1C
Midway – 12 FM–2, 10TBF1C
Gambier Bay – 16 FM–2, 8TBF1C
Nehenta Bay – 12 FM–2, 10TBF1C

Japanese Briefing.

'The opportunity for the decisive battle we have long sought has arrived. We must achieve a great victory'. Land based aircraft from the Marianas, Bonins, Carolines and Palau have kept the enemy carriers under constant pressure since the 14th June. Kakuta reliably reports five American carriers sunk or heavily damaged and many other ships put out of action. It remains for the carrier striking force to complete the victory with the utter destruction of the invaders.

Ozawa's force has a nearly impossible job in this scenario. The American carrier–borne air strength is overwhelming.

Japanese Order of Battle.

Naval Forces Available

Task Force 0 (Ozawa)

TG 1 (Available 17th June)
3 CV – Shokaku, Zuikaku, Taiho**
2 CA – Haguro(CA6), Myoko(CA7)
1 CL – Yahagi (CL24)
7 DD

TG 2 (Available 17th June)
2 CV – Hiyo, Junyo*
1 CVE – Ryuho
1 BB – Nagato(BB5)
1 CA – Mogami(CA15)
8 DD

TG 3 (Available 17th June)
1 CVL – Zuiho
2 CVE – Chitose, Chiyoda
2 BB – Yamato(BB7), Musashi(BB8)
2 BC – Kongo(BC1), Haruna(BC4)
8 CA – Atago*(CA9), Chokai(CA10), Maya(CA11), Takao(CA12), Kumano(CA13), Suzuya(CA16), Chikuma(CA17), Tone (CA18)
1 CL – Noshiro(CL22)
7 DD

Submarines (7)

Naval Air Forces Available

Shokaku – 28 A6M5a, 26 D4Y1, 18 B6N1, 4 D4Y1C
Zuikaku – 28 A6M5a, 26 D4Y1, 18 B6N1, 4 D4Y1C
Hiyo – 18 A6M5a, 10 A6M5b, 18 D3A2, 6 B6N1
Junyo – 18 A6M5a, 10 A6M5b, 18 D4Y1, 6 B6N1
Taiho – 28 A6M5a, 26 D4Y1, 18 B6N1, 4 D4Y1C
Zuiho – 6 A6M5a, 16 A6M5b, 10 B6N1
Ryuho – 18 A6M5a, 10 A6M5b, 6 B6N1
Chitose – 6 A6M5a, 16 A6M5b, 10 B5N2
Chiyoda – 6 A6M5a, 16 A6M5b, 10 B5N2

Land Based Air Forces Available

Theatre 0 (Kakuta)
Chichi Jima – 26 J1N1S, 20 P1Y1
Iwo Jima – 10 J2M2, 14 D4Y1
Davao – 36 A6M5b, 24 G4M2
Koror – 22 A6M5b, 12 N1K1J, 18 D4Y1, 24 G4M2
Yap – 14 A6M5a, 16 G4M2, 8 C6N1, 10 H8K2
Tinian (1) – 12 A6M5a
Tinian (2) – 18 A6M5b, 16 P1Y1
Guam (1) – 14 A6M5a, 10 G4M2
Guam (2) – 12 A6M5a, 14 D4Y1
Truk – 10 H8K2

Theatre 1 (Matsumae)
Okinawa (1) – 16 Ki43B, 12 Ki61, 22 Ki67
Okinawa (2) – 18 Ki43B, 10 Ki15

Special Victory Conditions.

In addition to the provisions of Chapter 4 (Ending a Game) the Allied player must not lose any of his fleet carriers (CV's not CVL's or CVE's). Only those actually sunk count. CV's removed do not count.

Suggested Variations.

(a) Trained Aircrews. The majority of Japanese aircrews in this battle were poorly trained or not trained at all. Assume the IJN had taken a more responsible approach to aircrew replacement earlier in the war. Upgrade by one point the combat experience rating of every Japanese squadron in Theatre 0 and Task Force 0. Thus, a squadron with a rating of 0 becomes 1. (DM, p4).

(b) More Aircraft. By the time the Japanese carriers joined battle with the US carriers, the land based component of the joint operation had virtually been destroyed, primarily through premature use. Assume a more sensible course of action was taken. Double the aircraft strength in every fighter and bomber squadron on the following bases – Chichi Jima, Iwo Jima, Koror and Yap. (DM, p4).

GLOSSARY OF NAVAL TERMS

CV	**– Aircraft Carrier**	**DD**	**– Destroyer**
CVL	**– Light Carrier**	**DE**	**– Destroyer Escort**
CVE	**– Escort Carrier**	**APD**	**– Fast Transport**
AV	**– Seaplane Tender**	**ML**	**– Minelayer**
CAV	**– Seaplane Cruiser**	**SS**	**– Submarine**
BB	**– Battleship**	**SDS**	**– Submarine Depot Ship**
BC	**– Battlecruiser**	**AMS**	**– Armed Merchant Ship**
CA	**– Heavy Cruiser**	**AP**	**– Transport**
CL	**– Light Cruiser**	**APA**	**– Attack Transport**
CLA	**– AA Cruiser**	**AGC**	**– Amphibious Flagship**

APPENDIX A

Specifications for Scenario Variations

Pearl Harbour

Carriers

9
SARATOGA
86
1
4
62,63,64,65
8
1
15
0
0

Squadrons

62	63	64	65
2	5	5	6
20	18	14	12
7	7	7	7
1	1	1	1
1	1	1	1
N	N	Y	N
N	N	N	N
Y	Y	Y	Y

Coral Sea

Carriers

8	9
ENTERPRISE	HORNET
96	96
2	2
1	1
58–62	63–67
7	7
1	1
15	15
2	2
1	0

Squadrons

58	59	60	61	62	63	64	65	66	67
1	1	2	2	3	1	1	2	2	3
12	10	18	16	13	10	10	17	17	11
7	7	7	7	7	7	7	7	7	7
2	1	2	2	2	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1
N	N	N	Y	N	N	N	N	Y	N
N	N	N	N	N	N	N	N	N	N
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Midway

Carriers

6	7	16	17
SARATOGA	WASP	HIYO	JUNYO
86	84	53	53
59	60	61	61
1	1	5	5
75–79	80–84	85–89	90–94
9	8	5	5
2	1	0	0
15	15	15	15
2	2	0	0
1	0	1	1

Ship Classes

59	60	61
CV 1925	CV 1939	CV 1941
Y	Y	N
N	N	N
0	0	0
33	30	26
17	6	11
8	8	12
6	2	3
6	0	0
0	0	0
4	4	6
0	0	0
1	1	0
0	0	0
0	0	0

Squadrons

75	76	77	78	79	80	81	82	83	84
3	3	6	6	7	3	3	6	6	8
14	13	18	18	15	14	13	12	13	12
7	7	7	7	7	7	7	7	7	7
2	1	2	1	1	2	1	1	1	1
1	1	1	1	1	1	1	1	1	1
N	N	N	Y	N	N	N	N	Y	N
N	N	N	N	N	Y	N	N	N	N
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Squadrons

85	86	87	88	89	90	91	92	93	94
17	17	18	18	21	17	17	18	18	21
9	9	9	9	9	9	9	9	9	9
6	6	6	6	6	6	6	6	6	6
2	2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1	1
N	N	N	N	N	N	N	N	N	N
N	N	N	N	N	N	N	N	N	N
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

APPENDIX A

Santa Cruz

Carriers

7	8	9
SARATOGA	WASP	HIYO
86	84	53
40	41	21
1	2	5
97–101	102–106	107–111
9	8	5
2	2	1
15	15	15
3	3	0
2	1	1

Other Ships

39
BB 55
42
2
15
0
3
1
2
–
–
–
–

Ship Classes

40	41	42
CV 1925	CV 1939	BB 1940
Y	Y	Y
N	N	N
0	0	1
33	30	28
17	6	18
8	8	20
6	2	2
6	0	12
0	0	9
4	4	10
0	0	0
1	1	6
0	0	0
0	0	0

Squadrons

97	98	99	100	101	102	103	104	105	106
4	4	5	5	6	4	4	5	5	6
16	16	15	15	11	14	13	12	12	10
6	5	6	5	6	5	5	5	5	6
2	2	3	2	2	2	1	2	2	1
1	1	1	1	1	1	1	1	1	1
N	N	N	Y	N	N	N	N	Y	N
N	N	N	N	N	Y	N	N	N	N
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Squadrons

107	108	109	110	111
17	17	19	19	21
8	7	9	9	9
7	7	7	7	7
2	1	2	1	2
1	1	1	1	1
N	N	N	N	N
N	N	N	N	N
Y	Y	Y	Y	Y

DESIGNER'S RAMBLINGS

In January 1984 we decided not to proceed with a game which we had titled 'Task Force South' (The Falklands War). We weren't sure we knew enough about modern naval combat to design a serious simulation about it.

We decided to do something easy instead. 'Carriers at War' would only take a few months to finish since we knew so much about the period. Well, eleven months later we know now what we didn't know when we started. To do justice to any historical event requires a prodigious amount of work. Not only must the simulation work, it also must bear at least a passing resemblance to the events it purports to portray.

'Carriers at War' is an enormous program. There is 80K of machine code (with at least nine bits per byte!) driving the game and about 70K of data stored in the scenarios. The map, for example, uses one byte per hex which comes to 6K for the 6048 hexes used by every map. Other data occupies altogether some 18K.

Every search is carried out by an individual aircraft which actually flies along its preset compass bearing looking for enemy ships to report on.

The most frustrating and persistant problem besetting us for the final six months has been memory allocation. A forgotten number of innovative and seemingly brilliant ideas have been stillborn due solely to the crushing constraint of the paltry 64K available to us. What we could have done with half a megabyte!

In contrast to the frustration of trying to fit 2 bytes into 1 has been the enjoyment we have found in researching the events which comprise the game. Fact really is stranger and more interesting than fiction and we highly recommend a look at any of the titles in the bibliography. They make fascinating reading.

Finally, we would like to hope that the reader gets some small measure of entertainment from our creation. Should this be so, then we won't have completely wasted our time.

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